

REMARKS/ARGUMENTS

The Office Action mailed April 16, 2004 has been carefully considered.

Reconsideration in view of the following remarks is respectfully requested.

Claim Status and Amendment to the Claims

Claims 1-75 are now pending. No claims stand allowed.

Claims 1, 11, 21, 31, 59, 62, 65 and 68 have been amended to further particularly point out and distinctly claim subject matter regarded as the invention. The text of claims 2-10, 12-20, 22-30, 32-58, 60-61, 63-64 and 66-67 is unchanged, but their meaning is changed because they depend from amended claims.

New claims 69-75 have been added and also particularly point out and distinctly claim subject matter regarded as the invention. Support for these changes may be found in the specification, page 9, lines 22-23, and page 19, lines 11-19.

The amendment also contains minor changes of a clerical nature. No “new matter” has been added by the amendment.

The 35 U.S.C. §103 Rejection

Claims 1-3, 11-13, 21-23, 31-48, and 52-68 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Kamiya et al. (U.S. Pat. No. 5,974,033) in view of Ganz et al. (U.S. Pat. No. 6,049,549), among which claims 1, 11, 21, 31, 59, 62, 65 and 68 are independent claims.

This rejection is respectfully traversed.

According to M.P.E.P. §2143,

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.

Furthermore, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Claim 1 defines a method for controlling congestion in a networking device having a plurality of input interface queues. The claimed method comprises (a) estimating, in each sampling state, a data arrival rate for each of the plurality of *input* interface queues with respect to *incoming data packets received on corresponding input interfaces*, and obtaining a set of estimated arrival rates for the plurality of the input interface queue, (b) determining, for each polling state associated with a respective sampling state, the sequence in which the plurality of input interface queues should be polled and the quantity of data to be processed from each of the plurality of input interface queues each time the input interface queue is polled, using the set of estimated data arrival rates of the plurality of input interface queues, and (c) polling, in each polling state, the plurality of the input interface queues in accordance with the determined sequence and quantity, as recited in claim 1 as amended (*emphasis added*).

Similarly, claim 59 defines a method for controlling congestion in a networking device having a plurality of input interface queues. The claimed method comprises (a) estimating a data arrival rate for each of the plurality of *input* interface queues with respect to *incoming data packets received on corresponding input interfaces*, and obtaining a set of estimated arrival rates for the plurality of the input interface queue, (b) determining a sequence in which the plurality of input interface queues should be polled and a quantity of data to be processed from each of the plurality of input interface queues each time the input interface queue is polled, using the set of estimated data arrival rates of the plurality of input interface queues, (c) polling the plurality of the input interface queues in accordance with the sequence and the quantity determined in said determining, and (d) updating the sequence and the quantity used in said polling by repeating said estimating, said determining, and said polling with a desired cycle, as recited in claim 59 as amended (*emphasis added*).

In the Office Action, the Examiner contends that the elements of the presently claimed invention are disclosed in Kamiya except that Kamiya does not teach the claimed determining, for each polling state, the sequence in which the plurality of input interface queues should be polled using the estimated data arrival rates; polling, in each polling state, the plurality of the input interface queues in accordance with the determined sequence; and updating the sequence used in said polling by repeating said determining and said polling with a desired cycle, as recited above. The Examiner further contends that Ganz teaches these missing features and that it would be obvious to one having

ordinary skill in the art at the time of the invention to incorporate Ganz into Kamiya in order to “avoid unnecessary using bandwidth by excessively polling the inputs.”

In the Office Action, the Examiner specifically alleges that Kamiya teaches, in column 3, line 63 to column 4, line 45, and column 4, line 66 to column 5, line 19 thereof, estimating the data arrival rate on each of the plurality of input interface queues in each sampling state; determining the quantity of data to be processed from each of the plurality of input interface queues, using the estimated data arrival rate on each of the plurality of input interface queues; and updating the quantity used in said polling by repeating said estimating and said determining. Furthermore, the Examiner alleges that “as broadly defined,” the estimated data arrival rate of the claimed invention is equivalent to Ganz’s “monitored data transmissions,” citing column 2, lines 45-55 and column 3, lines 20-29 thereof. However, Applicants respectfully disagree for the reasons set forth below.

Kamiya describes, in column 3, line 66 to column 4, line 20 thereof, as follows:

...wherein band management is effected with a resource management cell, and sends out an arrival cell arriving from a transmission terminal side to a reception terminal side adjusting an interval of the cell from a preceding cell for each virtual path and each virtual channel, comprising a cell buffer for temporarily storing the arrival cell arriving from the transmission terminal side for each virtual path and each virtual channel, a write control section for storing the arrival cell into the cell buffer in response to a virtual path identifier and a virtual channel identifier of the arrival cell, a rate information processing section for predicting a sending rate of the transmission terminal in response to rate control information detected from a cell directed from the reception terminal side toward the transmission terminal side and successively storing the sending rate in an updating manner as sending rate information of the arrival cell for the virtual path and the virtual channel, and a read control section for reading out the cell stored in the cell buffer at an interval based on the sending rate information stored in the rate information processing

section corresponding to the virtual path and the virtual channel and sending out the cell to the reception terminal side.

Thus, in Kamiya, an arrival cell (alleged incoming data packet) is temporally stored in a cell buffer (alleged interface queue), and then sent out to the reception terminal side based on the sending rate information of the arrival cell for the virtual path and virtual channel. Since the arrival cell is read out from the cell buffer and sent out in accordance with the sending rate, this sending rate is the rate of outgoing cells. In addition, the sending rate information is detected from a different cell sent backward from the reception terminal side (see below for details), and not related to arrival of incoming cells to the cell buffer. There is no suggestion in Kamiya that arrival of incoming cells to the cell buffer is monitored or observed, or otherwise used to determine an arrival rate of such incoming cells which are allegedly queued in the cell buffer. Kamiya only mentions transmission of outgoing cells and the sending rate thereof, and thus Kamiya's rate information processing section only predicts the *sending* rate of the arrival cell for *sending out* to the reception terminal, not an *arrival* rate of the incoming cell (data packet) *received* on input interfaces, as recited in claim 1 and 59.

It should be noted that "the rate control information detected from a cell directed from the reception terminal side toward the transmission terminal side" is actually a backward resource management (BRM) cell sent back from the reception terminal (column 1, lines 59-65 and column 7, lines 43-54 of Kamiya), containing explicit rate information. In addition, although Kamiya describes the rate control information processing section "predicts a sending rate of the transmission terminal based on any of

or any combination of an arrival time, a type and information in a payload of a cell detected from a cell directed from the reception terminal to the transmission terminal” (column 4, line 67 to column 5, line 4, also column 15, line 64 to column 16, line 4 thereof), such arrival time or arrival time interval of the BRM cell is used to predict the *sending* rate, not the *arriving* rate of any cell. Furthermore, such BRM cells are “backward” cells and thus not buffered in the cell buffer (alleged queue).

Accordingly, Kamiya fails to teach or suggest estimating, in each sampling state, a data arrival rate for each of the plurality of input interface queues with respect to incoming data packets received on corresponding input interfaces, and obtaining a set of estimated arrival rates for the plurality of the input interface queue, as recited in claim 1.

Furthermore, regarding the quantity of data to be processed, since Kamiya only controls an interval of reading out (alleged polling) from a cell buffer based on the sending rate information (column 4, lines 16-18 thereof), Kamiya also fails to teach or suggest determining the quantity of data to be processed from each of the plurality of input interface queues *each time the input interface queue is polled*, using the set of estimated data arrival rates of the plurality of input interface queues, as recited in claim 1 (*emphasis added*).

Ganz describes the “monitored data transmissions” and polling sequence as follows (column 3, lines 20-34 thereof):

Polling of sessions can be such that sessions with lower assigned data rates are polled less frequently than stations with higher assigned data rates. Also, adapting the

polling sequence can include reducing the rate of polling for a session in response the monitored transmissions for that session corresponding to a reduction in actual rate of transmission for that session, and increasing the rate of polling for a session in response the monitored transmissions for that session corresponding to an increase in actual rate of transmission for that session. Polling can be performed in a periodic cycle and during each period of the cycle a subset of the sessions in the quality of service class are polled in accordance with their allocated communication resources.

Thus, similarly to Kamiya, Ganz merely suggests a data rate of *transmission*, monitored or assigned, not a data rate of *arrival* with respect to incoming data packets received on corresponding input interfaces, as now clearly defined in claim 1. Thus, since polling sequence of Ganz is based on data transmission rate, not arrival rate of incoming data, Ganz also fails to teach or suggest determining, for each polling state, the sequence in which the plurality of input interface queues should be polled using the estimated data arrival rates, as recited in claim 1.

Accordingly, Kamiya, whether considered alone or combined with or modified by Ganz, does not teach or suggest the claimed invention as claimed in claim 1. Claims 11, 21, 31, 59, 62, 65 and 68 also include, among others, substantially the same distinctive feature as claim 1. Accordingly, it is respectfully requested that the rejection of claims based on Kamiya and Ganz be withdrawn. In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Dependent Claims

Claims 2-10, 32-33, 38-40 and 55 depend from claim 1, claims 12-20, 34-35, 41-43 and 56 depend from claim 11, claims 22-30, 36-37, 44-46 and 57 depend from claim 21, claims 47-54 and 58 depend from claim 31, claims 60-61 depend from claim 59,

claims 63-64 depend from claim 62, claims 66-67 depend from claim 65, and thus include the limitations of respective independent claims. The argument set forth above is equally applicable here. The base claims being allowable, the dependent claims must also be allowable at least for the same reasons.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Conclusion

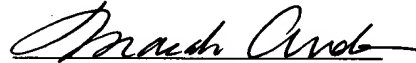
It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 50-1698.

Respectfully submitted,
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Limited Recognition under 37 CFR §10.9(b)

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